q 523.8
G82a
1922

ASSUMED MEAN RIGHT ASCENSIONS

REMOTE STORAGE

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UNIVERSITY OF ILLINOIS

OF

CLOCK STARS AND AZIMUTH STARS

FOR

1922·0.

(Based on observations made in the years 1915–1921.)

Royal Observatory, Greenwich,
1922, February.

ROYAL OBSERVATORY,

ASSUMED MEAN RIGHT ASCENSIONS OF CLOCK STARS WITH THE

Star's Name.	Mag.	Assumed Mean R.A. 1922·0.	Correction to N.A. s (unit ·001).	Approx. N.P.D.	Star's Name.	Mag.	Assumed Mean R.A. 1922·0.	Correction to N.A. s (unit ·001).	Approx. N.P.D.
		h m s		° ′			h m s		° ′
α Andromedæ	2·2	0. 4.21·114	−12	61.20	κ Orionis	2·2	5.44. 3·400	−11	99.42
γ Pegasi	2·9	0. 9.13·027	− 1	75.15	α Orionis	0·7*	5.50.56·925	+ 3	82.36
ι Ceti	3·8	0.15.27.231	−12	99.15	1 Geminorum	4·3	5.59.22·706	−37	66.44
44 Piscium	6·0	0.21.24·191	−17	88.30	ν Orionis	4·4	6. 3. 7·086	−57	75.13
12 Ceti	6·0	0.26. 3·461	−46	94.23	η Geminorum	3·5*	6.10.10·172	−40	67.28
ε Andromedæ	4·5	0.34.25·745	−16	61. 7	μ Geminorum	3·2	6.18.14·507	−33	67.27
β Ceti	2·2	0.39.40·524	+19	108.25	β Canis Majoris	2·0	6.19.15·853	−10	107.55
δ Piscium	4·6	0.44.38·025	+19	82.50	ν Geminorum	4·1	6.24.19·932	+13	69.44
20 Ceti	4·9	0.49. 1·231	+34	91.34	γ Geminorum	1·9	6.33.12·415	+17	73.32
μ Andromedæ	3·9	0.52.25·051	−22	51.55	ξ Geminorum	3·4	6.40.54·721	−17	77. 1
ε Piscium	4·5	0.58.53·571	−17	82.32	θ Canis Majoris	4·3	6.50.33·946	−41	101.56
β Andromedæ	2·4	1. 5.21·533	+10	54.48	ε Canis Majoris	1·6	6.55.33·620	+16	118.52
ζ^1 Piscium	5·6	1. 9.39·233	−26	82.50	ζ Geminorum	4·0*	6.59.29·015	−35	69.19
θ Ceti	3·8	1.20. 7·449	+15	98.35	γ Canis Majoris	4·1	7. 0.13·747	−47	105.31
η Piscium	3·7	1.27.18·387	+19	75. 3	51 Geminorum	5·3	7. 8.53·599	−57	73.42
ν Piscium	4·7	1.37.22·196	− 8	84.54	δ Geminorum	3·5	7.15.27·963	−53	67.52
ο Piscium	4·5	1.41.16·326	−18	81.14	β Canis Minoris	3·1	7.22.55·292	−33	81.33
β Arietis	2·7	1.50.19·653	+50	69.34	Castor	2·0	7.29.37·577	+12	57.56
υ Ceti	4·2	1.56.19·794	+48	111.27	Procyon	0·5	7.35.13·181	+29	84.34
α Arietis	2·2	2. 2.46·330	+16	66.54	Pollux	1·2	7.40.32·769	+24	61.47
ξ^1 Ceti	4·5	2. 8.51·784	−13	81.31	ξ Argûs	3·5	7.46. 0·838	+10	114.40
67 Ceti	5·7	2.13. 5·510	+22	96.47	9 Puppis	5·3	7.48. 9·592	−20†	103.41
ξ^2 Ceti	4·3	2.24. 0·549	− 3	81.53	6 Cancri	5·0	7.58.43·833	−54	61.59
ν Ceti	5·0	2.31.46·704	+ 9	84.45	ρ Argûs	2·9	8. 4.13·333	+23	114. 5
δ Ceti	4·0	2.35.28·936	−39	90. 0	β Cancri	3·8	8.12.17·198	+ 6	80.34
γ^2 Ceti	3·6	2.39.15·418	+18	87. 6	d^1 Cancri	5·9	8.18.54·005	− 3	71.25
σ Arietis	5·5	2.47.10·971	0	75.14	η Cancri	5·5	8.28.12·026	−52	69.18
ε Arietis	4·6	2.54.44·860	− 6	68.58	γ Cancri	4·7	8.38.46·481	−55	68.15
α Ceti	2·8	2.58.12·000	+ 9	86.13	ε Hydræ	3·5	8.42.38·802	−29	83.18
δ Arietis	4·5	3. 7. 9·902	−21	70.34	α Cancri	4·3	8.54.13·391	−23	77.50
τ^1 Arietis	5·2	3.16.43·201	−28	69. 8	κ Cancri	5·1	9. 3.31·443	−42	79. 1
ο Tauri	3·8	3.20.36·776	−17	81.15	83 Cancri	6·6	9.14.37·814	−82	71.58
f Tauri	4·3	3.26.33·827	−25	77.20	α Hydræ	2·2	9.23.45·286	− 8	98.19
ε Eridani	3·8	3.29.15·279	+10	99.43	ξ Leonis	5·1	9.27.44·589	−40	78.21
11 Tauri	6·2	3.36. 6·523	−46	64.55	ο Leonis	3·8	9.36.59·382	−12	79.45
δ Eridani	3·7	3.39.30·624	− 3	100. 2	ε Leonis	3·1	9.41.25·649	+ 5	65.52
η Tauri	3·0	3.42.50·646	− 8	66. 8	μ Leonis	4·1	9.48.19·890	+ 5	63.37
ζ Persei	2·9	3.49.13·453	−16	58.21	π Leonis	4·9	9.56. 5·581	+ 2	81.35
γ^1 Eridani	3·2	3.54.23·354	−29	103.44	Regulus	1·3	10. 4.13·214	+ 5	77.39
A^1 Tauri	4·5	4. 0. 4·825	−33	68. 8	γ^1 Leonis	2·6	10.15.40·543	+50	69.46
ω^1 Tauri	5·7	4. 4.37·133	−29	70.36	μ Hydræ	4·1	10.22.19·027	−13	106.26
o^1 Eridani	4·1	4. 8. 3·382	−45	97. 2	ρ Leonis	3·9	10.28.42·342	− 4	80.17
γ Tauri	3·9	4.15.21·109	−12	74.34	34 Sextantis	6·6	10.38.35·867	−25	86. 1
ε Tauri	3·6	4.24. 3·559	−33	70.59	*l* Leonis	5·3	10.45. 9·523	−44	79. 3
Aldebaran	1·1	4.31.26·598	+38	73.39	*d* Leonis	5·1	10.56.31·967	− 9	85.58
τ Tauri	4·3	4.37.33·632	−56	67.11	χ Leonis	4·7	11. 0.59·667	−17	82.15
μ Eridani	4·2	4.41.36·044	−39	93.24	δ Leonis	2·6	11. 9.57·770	−27	69. 3
ι Aurigæ	2·9	4.51.54·657	−21	56.57	δ Crateris	3·8	11.15.26·357	− 7	104.21
ι Tauri	4·7	4.58.25·867	−65†	68.31	τ Leonis	5·2	11.23.55·590	+ 6	86.43
ε Leporis	3·3	5. 2. 9·519	+14	112.28	υ Leonis	4·5	11.32.57·285	−14	90.24
Rigel	0·3	5.10.47·328	+24	98.17	β Leonis	2·2	11.45. 4·968	+ 5	75. 0
β Tauri	1·8	5.21.21·593	0	61.27	β Virginis	3·8	11.46.37·924	−12	87.48
δ Orionis	2·5	5.28. 1·260	+ 1	90.21	π Virginis	4·6	11.56.52·564	+13	82.57
α Leporis	2·7	5.29.17·373	−12	107.53	ο Virginis	4·2	12. 1.14·164	−28	80.50
ε Orionis	1·8	5.32.15·297	+ 3	91.15	ε Corvi	3·2	12. 6. 6·616	0	112.11

NOTE.—The Right Ascensions are deduced from the "Standard Mean Right Ascensions of Clock Stars based on Twelve-hour groups" from observations made in the years 1915–1921, with the travelling wire micrometer. The values of the Precession and Proper Motions are taken from Prof. Newcomb's "Catalogue of Fundamental Stars." The magnitudes are taken from the *Revised Harvard Photometry* and the *Harvard Photometry*, except in the case of variable stars marked with an asterisk.

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GREENWICH.

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CORRECTIONS TO THE R.A. OF THE NAUTICAL ALMANAC FOR 1922·0.

Star's Name.	Mag.	Assumed Mean R.A. 1922·0.	Correction to N.A. s (unit ·001).	Approx. N.P.D.	Star's Name.	Mag.	Assumed Mean R.A. 1922·0.	Correction to N.A. s (unit ·001).	Approx N.P.D.
		h m s		° ′			h m s		° ′
η Virginis	4·0	12. 15. 54·868	−47	90. 14	α Lyræ	0·1	18. 34. 17·840	−12	51. 17
δ^2 Corvi	3·1	12. 25. 49·545	−29	106. 5	2 Aquilæ	4·7	18. 38. 0·187	−63	99. 8
β Corvi	2·8	12. 30. 17·162	+26	112. 58	β^1 Lyræ	3·7*	18. 47. 11·991	− 2	56. 44
ρ Virginis	5·0	12. 37. 56·201	−33	79. 20	ε Aquilæ	4·2	18. 56. 4·934	+27	75. 2
35 Virginis	6·7	12. 43. 53·076	−28	86. 0	ζ Aquilæ	3·0	19. 1. 49·504	+22	76. 15
31 Comæ	5·1	12. 47. 54·055	+31	62. 2	ψ Sagittarii	4·9	19. 10. 45·556	+28	115. 24
δ Virginis	3·7	12. 51. 40·423	+10	86. 11	ω Aquilæ	5·1	19. 14. 9·308	− 7	78. 33
ε Virginis	3·0	12. 58. 17·649	+ 3	78. 37	δ Aquilæ	3·4	19. 21. 33·948	+ 5	87. 3
θ Virginis	4·4	13. 5. 54·550	− 3	95. 7	α Vulpeculæ	4·6	19. 25. 27·574	+19	65. 30
γ Hydræ	3·3	13. 14. 40·668	+48	112. 46	μ Aquilæ	4·7	19. 30. 16·735	−34	82. 47
Spica	1·2	13. 21. 4·883	+ 5	100. 45	h^2 Sagittarii	4·7	19. 31. 57·770	+48	115. 3
ζ Virginis	3·4	13. 30. 43·029	+20	90. 12	e^1 Sagittarii	5·5	19. 36. 15·348	−10	106. 28
m Virginis	5·3	13. 37. 30·939	+10	98. 19	γ Aquilæ	2·8	19. 42. 33·105	+28	79. 35
τ Boötis	4·5	13. 43. 33·342	+17	72. 9	α Aquilæ	0·9	19. 46. 58·690	+31	81. 20
η Boötis	2·8	13. 50. 58·245	− 7	71. 13	β Aquilæ	3·9	19. 51. 28·918	+ 9	83. 47
τ Virginis	4·3	13. 57. 40·507	−19	88. 5	*c* Sagittarii	4·6	19. 57. 51·892	+32	117. 56
94 Virginis	6·6	14. 2. 9·764	− 1	98. 31	θ Aquilæ	3·4	20. 7. 16·854	+ 4	91. 3
κ Virginis	4·3	14. 8. 43·941	− 1	99. 55	α^2 Capricorni	3·8	20. 13. 43·691	− 5	102. 47
Arcturus	0·2	14. 12. 6·212	+33	70. 25	β Capricorni	3·3	20. 16. 37·844	+20	105. 2
f Boötis	5·4	14. 22. 49·663	+ 9	70. 25	ρ Capricorni	5·0	20. 24. 24·803	− 7	108. 4
ρ Boötis	3·8	14. 28. 28·118	−22	59. 17	ε Delphini	4·0	20. 29. 29·189	−20	78. 58
ϵ^2 Boötis	2·7	14. 41. 34·851	+15	62. 36	α Delphini	3·9	20. 36. 0·902	−20	74. 22
α Libræ	2·9	14. 46. 33·600	+20	105. 43	ε Aquarii	3·8	20. 43. 27·303	+ 5	99. 47
ξ^2 Libræ	5·6	14. 52. 31·943	+ 7	101. 6	μ Aquarii	4·8	20. 48. 26·888	− 5	99. 17
ψ Boötis	4·7	15. 1. 6·173	−13	62. 45	32 Vulpeculæ	5·2	20. 51. 14·100	−20	62. 14
ι^1 Libræ	4·7*	15. 7. 46·265	− 3	109. 30	θ Capricorni	4·2	21. 1. 33·895	+19	107. 33
β Libræ	2·7	15. 12. 48·413	− 7	99. 6	ζ Cygni	3·4	21. 9. 36·929	− 8	60. 6
o^2 Libræ	6·6	15. 18. 40·543	−11	104. 51	α Equulei	4·1	21. 11. 55·494	− 7	85. 5
ζ^1 Libræ	5·9	15. 23. 51·231	−19	106. 27	ι Capricorni	4·3	21. 17. 54·358	−11	107. 10
α Coronæ	2·3	15. 31. 23·099	+10	63. 1	β Aquarii	3·1	21. 27. 27·244	+ 4	95. 55
α Serpentis	2·8	15. 40. 25·478	+10	83. 20	ξ Aquarii	4·8	21. 33. 36·055	−11	98. 12
ε Serpentis	3·8	15. 46. 55·562	− 6	85. 17	ε Pegasi	2·5	21. 40. 21·302	+18	80. 29
γ Serpentis	3·9	15. 52. 50·938	− 9	74. 5	δ Capricorni	3·0	21. 42. 44·286	+20	106. 29
β^1 Scorpii	2·9	16. 0. 53·894	+33	109. 36	16 Pegasi	5·1	21. 49. 30·705	−20	64. 27
δ Ophiuchi	3·0	16. 10. 15·342	−23	93. 30	α Aquarii	3·2	22. 1. 46·710	+ 6	90. 42
γ Herculis	3·8	16. 18. 28·722	+18	70. 40	ι Pegasi	4·0	22. 3. 22·700	− 6	65. 2
Antares	1·2	16. 24. 37·303	+ 6	116. 16	θ Aquarii	4·3	22. 12. 43·135	+ 6	98. 10
λ Ophiuchi	3·9	16. 26. 58·670	0	87. 51	γ Aquarii	4·0	22. 17. 37·677	− 3	91. 47
ζ Ophiuchi	2·7	16. 32. 51·688	−12	100. 25	σ Aquarii	4·9	22. 26. 31·248	−26	101. 5
ζ Herculis	3·0	16. 38. 20·684	−41	58. 15	η Aquarii	4·1	22. 31. 20·914	− 5	90. 31
20 Ophiuchi	4·7	16. 45. 30·991	−40†	100. 39	ζ Pegasi	3·6	22. 37. 34·281	− 2	79. 35
κ Ophiuchi	3·4	16. 53. 58·517	+10	80. 30	μ Pegasi	3·7	22. 46. 14·194	− 3	65. 49
ε Herculis	3·9	16. 57. 18·283	+ 4	58. 58	λ Aquarii	3·8	22. 48. 32·769	+ 3	98. 0
η Ophiuchi	2·6	17. 5. 54·178	+39	105. 38	δ Aquarii	3·5	22. 50. 30·751	+15	106. 14
α^1 Herculis	3·5*	17. 11. 5·414	+11	75. 31	α Pegasi	2·6	23. 0. 52·449	+13	75. 13
θ Ophiuchi	3·4	17. 17. 13·044	+13	114·55	c^2 Aquarii	3·8	23. 5. 17·427	+44	111. 36
σ Ophiuchi	4·4	17. 22. 38·588	−44	85. 48	γ Piscium	3·9	23. 13. 7·294	+15	87. 9
α Ophiuchi	2·1	17. 31. 18·797	+20	77. 23	κ Piscium	4·9	23. 22. 56·010	−25	89. 10
β Ophiuchi	2·9	17. 39. 37·120	− 8	85. 24	72 Pegasi	5·2	23. 30. 4·771	−16†	59. 6
μ Herculis	3·5	17. 43. 24·316	+ 7	62. 14	ι Piscium	4·3	23. 35. 56·241	− 7	84. 48
89 Herculis	5·5	17. 52. 16·361	−53	63. 56	λ Piscium	4·6	23. 38. 3·950	−12	88. 39
72 Ophiuchi	3·7	18. 3. 39·063	− 1	80. 27	φ Pegasi	5·2	23. 48. 31·033	+10	71. 19
μ Sagittarii	4·0	18. 9. 5·906	+28	111. 5	ω Piscium	4·0	23. 55. 18·274	−22	83. 34
η Serpentis	3·4	18. 17. 16·398	+36	92. 55	2 Ceti	4·6	23. 59. 44·724	+22	107. 46
λ Sagittarii	2·9	18. 23. 9·450	+49	115. 28					

The correction to the R.A. of Procyon for the effect of orbital motion 1922·0 is $-0^{s}{\cdot}033$. This correction is derived from the *American Ephemeris*.

The Right Ascensions of the Nautical Almanac for 1922 are taken from various sources, which are indicated in the section of *apparent places of stars*.

† Denotes correction to the R.A. given in the *Connaissance des Temps*.

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ASSUMED MEAN RIGHT ASCENSIONS OF AZIMUTH STARS WITH CORRECTIONS TO THE EPHEMERIS R.A., FOR 1922·0.

Star's Name.	Mag.	Assumed Mean R.A. 1922·0.	Correction to Ephemeris.	Approx. N.P.D.	Star's Name.	Mag.	Assumed Mean R.A. 1922·0.	Correction to Ephemeris.	Approx. N.P.D.
		h m s	s	° ′			h m s	s	° ′
β Cassiopeiæ	2·4	0. 5. 0·30	NA—·07	31. 17	κ Draconis	3·9	12. 30. 9·71	BJ —·04	19. 47
α Cassiopeiæ	2·5	0. 36. 4·22	NA 00	33. 53	ε Ursæ Maj.	1·7	12. 50. 36·18	NA+·01	33. 37
γ Cassiopeiæ	2·3	0. 51. 59·22	NA—·02	29. 42	ζ¹Ursæ Maj.	2·4	13. 20. 47·31	NA—·04	34. 40
δ Cassiopeiæ	2·8	1. 20. 41·88	NA—·09	30. 10	η Ursæ Maj.	1·9	13. 44. 28·15	NA—·03	40. 18
Polaris	2·1	1. 32. 42·11	NA+·65	1. 7	Bradley 1823	4·8	13. 49. 9·24	SF —·01	24. 54
ε Cassiopeiæ	3·4	1. 48. 45·86	NA—·07	26. 43	α Draconis	3·6	14. 2. 16·58	NA—·10	25. 15
50 Cassiopeiæ	4·1	1·56. 44·37	BJ 00	17. 57	θ Boötis	4·1	14. 22. 32·49	BJ —·03	37. 47
η Persei	3·9	2. 44. 59·63	SF —·03	34. 26	β Ursæ Min.	2·2	14. 50. 54·89	NA—·17	15. 32
γ Persei	3·1	2. 59. 8·13	NA—·06	36. 48	Groomb. 2283	7·2	15. 2. 4·70	NA—·30	2. 28
α Persei	1·9	3. 18. 44·69	NA ·00	40. 25	γ Ursæ Min.	3·1	15. 20. 50·29	NA—·21	17. 53
2 H. Camelop.	4·4	3. 22. 44·29	BJ —·01	30. 20	ι Draconis	3·5	15. 23. 11·50	NA—·16	30. 46
δ Persei	3·1	3. 37. 21·78	NA—·03	42. 28	θ Draconis	4·1	16. 0. 29·49	BJ —·03	31. 14
5 H. Camelop.	4·7	3. 42. 5·83	BJ +·02	18. 54	τ Herculis	3·9	16. 17. 23·70	BJ —·02	43. 30
λ Persei	4·3	4. 0. 45·92	CT —·06	39. 52	η Draconis	2·9	16. 22. 55·88	NA—·05	28. 19
α Camelop.	4·4	4. 46. 17·03	BJ ·00	23. 47	ζ Draconis	3·2	17. 8. 33·49	NA ·00	24. 11
β Camelop.	4·2	4. 56. 28·31	CT ·00	29. 40	β Draconis	3·0	17. 28. 40·17	NA ·00	37. 38
Capella	0·2	5. 10. 55·40	NA—·05	44. 5	γ Draconis	2·4	17. 54. 47·69	NA+·01	38. 30
ξ Aurigæ	4·9	5. 48. 18·47	CT —·15	34. 19	δ Ursæ Min.	4·4	17. 57. 24·08	NA+·26	3. 23
δ Aurigæ	3·9	5. 53. 6·24	BJ —·03	35. 43	χ Draconis	3·7	18. 22. 27·86	BJ —·01	17. 18
β Aurigæ	2·1	5. 53. 48·39	NA—·08	45. 4	ο Draconis	4·8	18. 50. 3·08	BJ —·02	30. 42
22 H. Camelop	4·7	6. 10. 15·20	BJ —·07	20. 39	λ Ursæ Min.	6·6	18. 56. 37·38	NA+·75	0. 59
2 Lyncis	4·4	6. 12. 44·51	CT —·18	30. 57	δ Draconis	3·2	19. 12. 32·45	NA—·07	22. 29
15 Lyncis	4·5	6. 50. 31·64	BJ —·03	31. 28	ι² Cygni	3·9	19. 27. 44·46	BJ +·07	38. 26
Cephei 51	5·3	7. 4. 30·36	NA+·82	2. 50	δ Cygni	3·0	19. 42. 32·22	NA—·06	45. 4
24 Lyncis	5·0	7. 36. 24·97	BJ —·03	31. 6	ε Draconis	4·0	19. 48. 26·69	BJ —·02	19. 56
Groomb. 1374	5·6	7. 50. 53·41	BJ +·04	15. 52	33 Cygni	4·3	20. 11. 35·17	CT +·03	33. 40
Groomb. 1119	7·0	8. 20. 44·57	NA+·70	1. 8	θ Cephei	4·3	20. 28. 16·56	CT —·01	27. 16
ο Ursæ Maj.	3·5	8. 23. 47·84	NA—·13	29. 1	α Cygni	1·3	20. 38. 46·36	NA+·02	45. 0
ι Ursæ Maj.	3·1	8. 53. 52·52	NA—·04	41. 39	η Cephei	3·6	20. 43. 42·33	CT —·01	28. 28
ρ Ursæ Maj.	5·0	8. 55. 32·04	SF —·06	22. 4	Groomb. 3548	7·4	21. 15. 14·05	NA+·03	3. 17
h Ursæ Maj.	3·7	9. 25. 23·84	BJ —·05	26. 36	α Cephei	2·6	21. 16. 43·14	NA—·06	27. 45
θ Ursæ Maj.	3·3	9. 27. 39·01	NA—·04	37. 58	β Cephei	3·3	21. 27. 39·60	NA—·05	19. 47
υ Ursæ Maj	3·9	9. 45. 27·42	BJ —·06	30. 36	π² Cygni	4·3	21. 43. 54·59	BJ —·01	41. 3
9 H. Draconis	5·0	10. 28. 30·52	BJ +·02	13. 53	ζ Cephei	3·6	22. 8. 8·74	NA—·01	32·11
β Ursæ Maj.	2·4	10. 57. 8·75	NA—·03	33. 12	δ Cephei	Var.	22. 26. 16·28	CT ·00	31. 59
α Ursæ Maj.	2·0	10. 58. 55·69	NA—·07	27. 50	ι Cephei	3·7	22. 46. 53·92	BJ ·00	24. 13
λ Draconis	4·1	11. 26. 47·55	NA—·03	20. 14	Bradley 3147	5·6	23. 27. 44·48	NA+1·79	3. 7
γ Ursæ Maj.	2·5	11. 49. 44·14	NA—·05	35. 52	γ Cephei	3·4	23. 36. 7·88	NA—·19	12. 48
δ Ursæ Maj.	3·4	12. 11. 34·37	NA—·16	32. 32	ρ Cassiopeiæ	4·8	23. 50. 28·68	SF +·01	32. 56
Bradley 1672.	6·3	12. 14. 31·08	NA+·69	1. 52					

Note.—The Right Ascensions are based on observations made with the travelling wire micrometer in the years 1915–1921. The values of the Precession and Proper Motions are taken from Prof. Newcomb's "Catalogue of Fundamental Stars," with the exception of the P.M. of Bradley 3147, which has been taken from Prof. Boss's Preliminary General Catalogue for 1900. The magnitudes are taken from the *Revised Harvard Photometry* and the *Harvard Photometry*.

δ Cephei. Limits of magnitude, 3·7 to 4·9.